ALLOWANCE

This action is in response to Applicant's Request for Continued Examination dated February 4, 2010. Claims 1-6, 8-13, 15, 18-22, and 24 are allowed.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

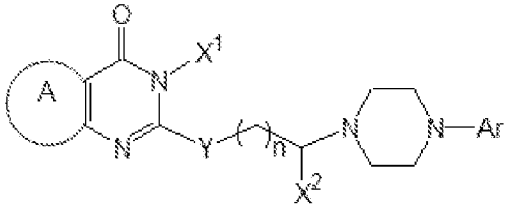
In a telephone discussion dated April 8, 2010, Applicant gave Examiner authorization for this Examiner's Amendment.

The Application has been amended as follows:

PLEASE REPLACE THE PRESENT CLAIM SET WITH THE FOLLOWING CLAIMS.

1. (Currently Amended) A pyrimidine compound represented by the following formula (I)

Deleted: Pyrimidine derivatives



(I)

in which

ring A stands for a carbocyclic group or heterocyclic group,

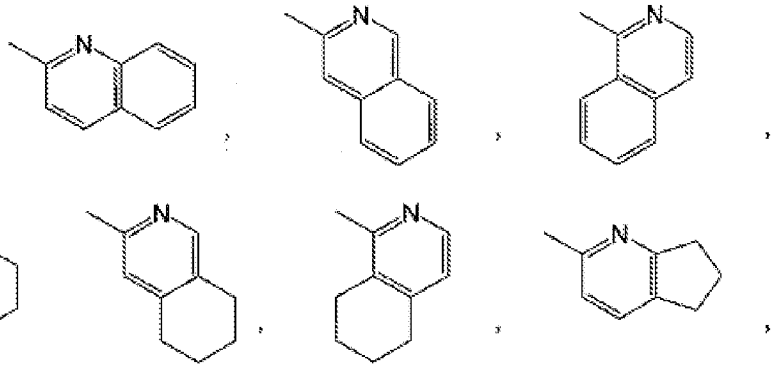
X^1 stands for amino, lower alkylamino, di-lower alkylamino, lower alkylideneamino, lower alkyl or phenyl lower alkyl,

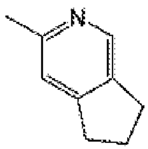
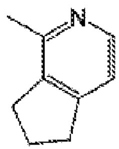
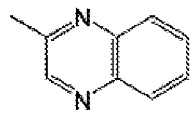
X^2 stands for hydrogen or lower alkyl,

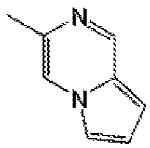
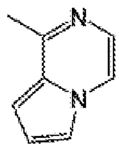
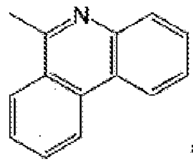
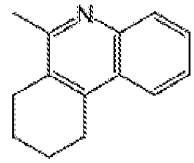
Y stands for a direct bond, sulfur or nitrogen,

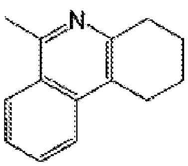
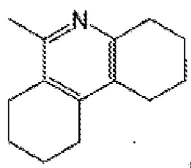
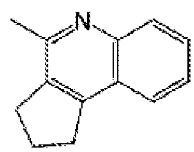
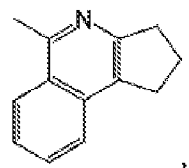
n is 0 or an integer of 1 – 4,

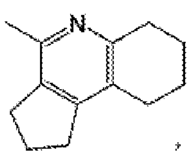
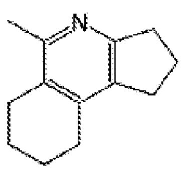
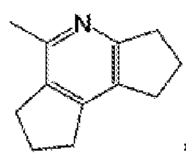
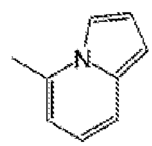
Ar stands for a group represented by any of the following formulae,

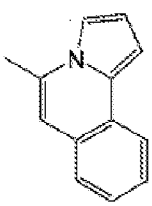
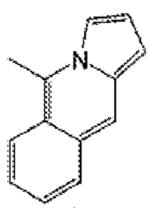
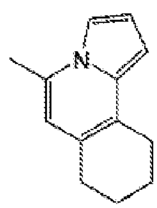
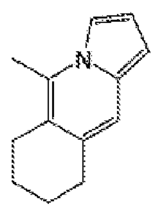


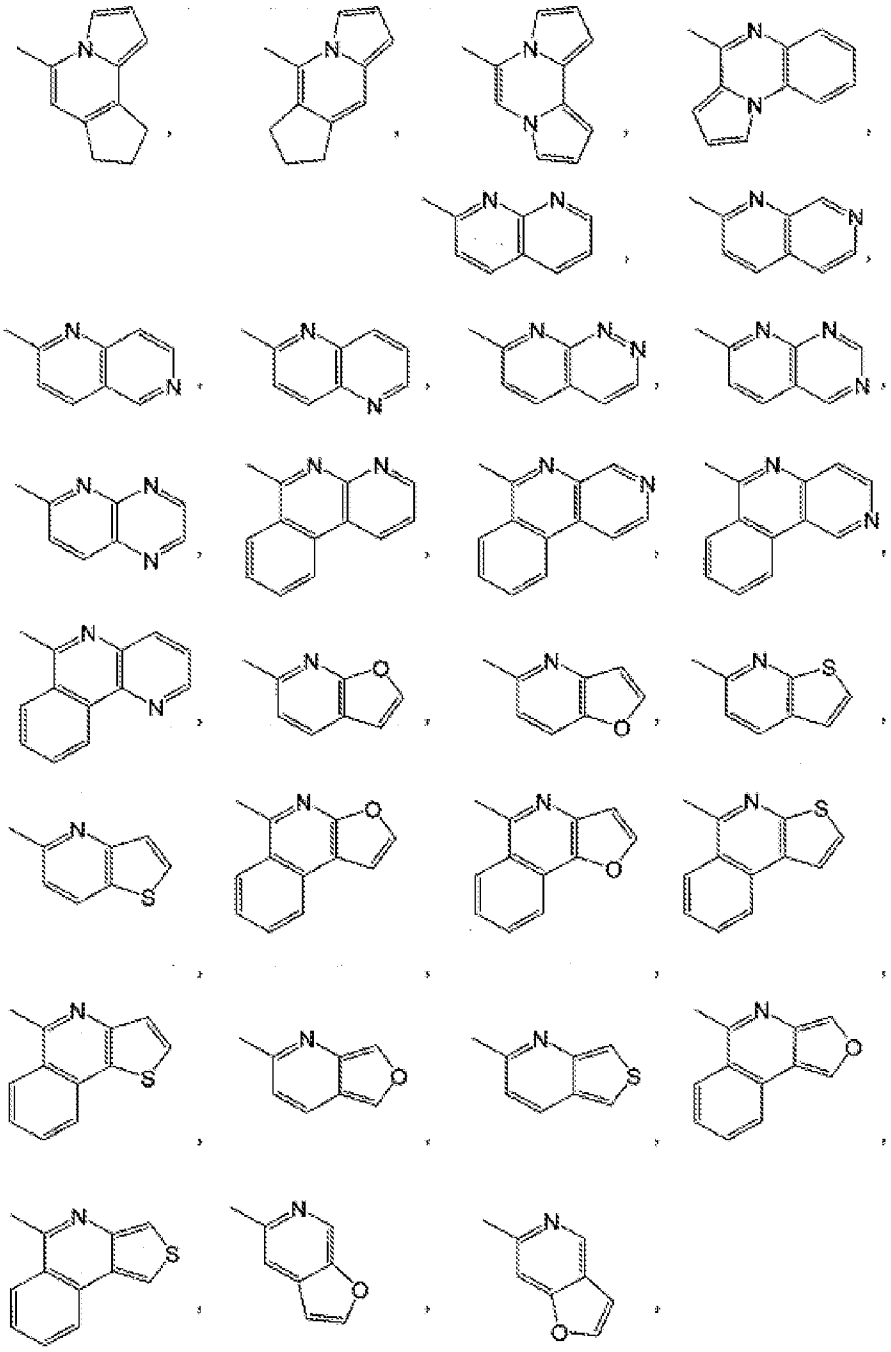
 ,  ,  ,

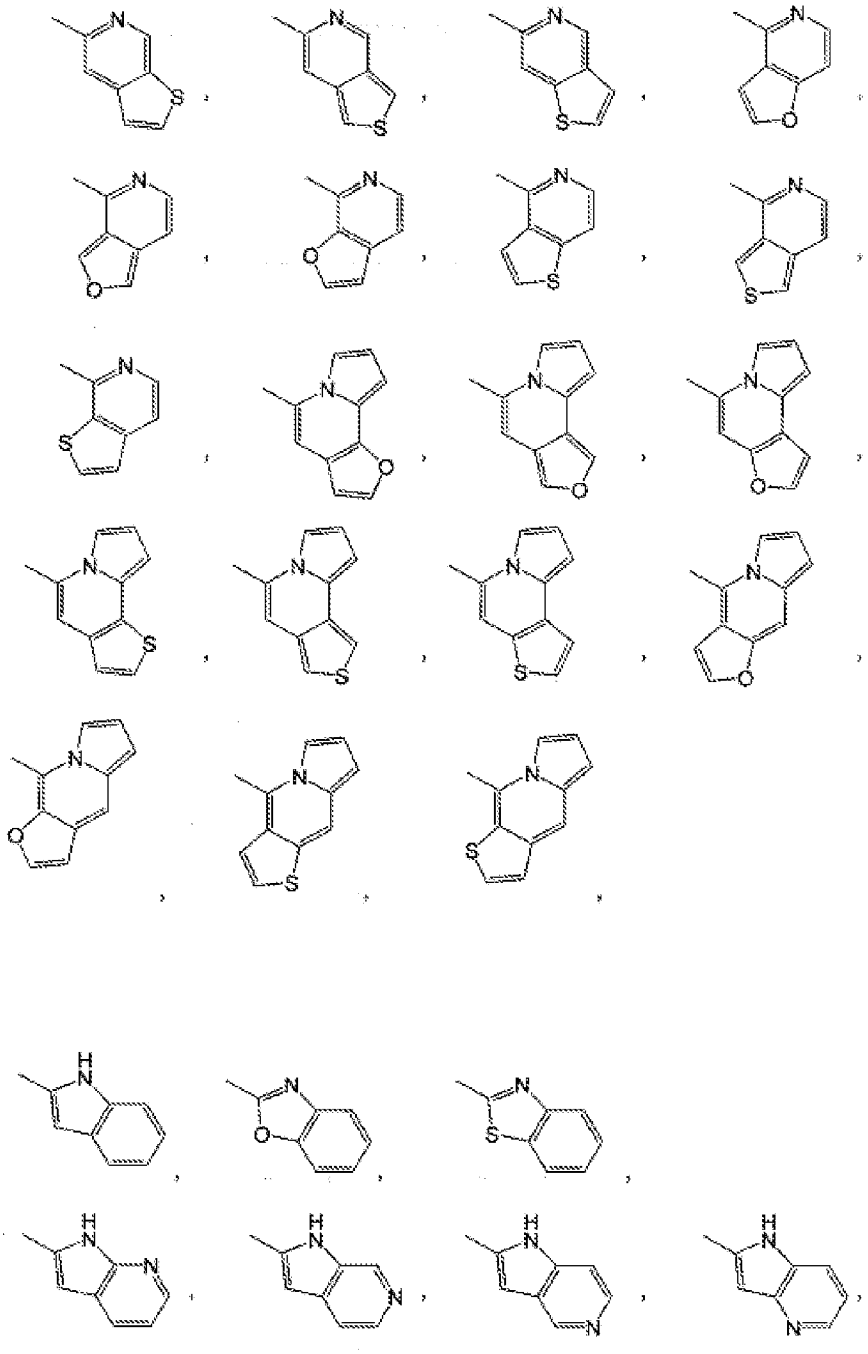
 ,  ,  ,  ,

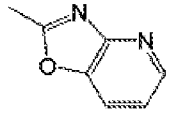
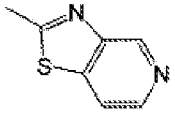
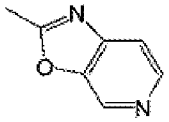
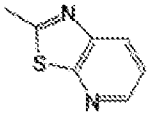
 ,  ,  ,  ,

 ,  ,  ,  ,

 ,  ,  ,  ,



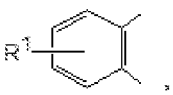
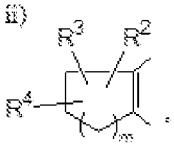
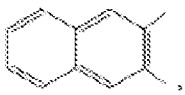


 ,  ,  , or  ,

which are, independently from each other, either unsubstituted or substituted with substituent(s) selected from halogen, lower alkyl, hydroxyl, lower alkoxy and phenyl,

or a pharmaceutically acceptable salt thereof.

2. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which the ring A stands for a carbocyclic group represented by any of the following formulae i) – iv):

i)  , ii)  , iii)  , iv) 

in which

R^1 stands for hydrogen, halogen, lower alkyl, halogenated lower alkyl, lower alkoxy, carboxyl, lower alkoxycarbonyl, phenyl, amino, hydrazino or nitro,

R^2, R^3 and R^4 either stand for, independently from each other, hydrogen, halogen, lower alkyl, lower alkoxy, phenyl or hydroxyl; or two out of R^2, R^3 and R^4 together stand for oxo or lower alkylenedioxy, and

m is an integer of 1 – 3.

3. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 2, in which the ring A stands for a carbocyclic group represented by the formula ii).

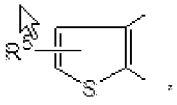
4. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 3, in which m is 2.

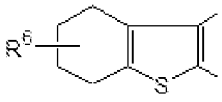
5. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 4, in which all of R^2, R^3 and R^4 stand for hydrogen atoms.

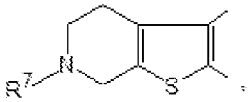
Deleted: derivatives
Deleted: their
Deleted: salts

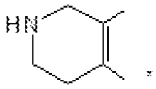
6. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which the ring A stands for a heterocyclic group represented by any of the following formulae v) – xv):

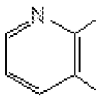
Deleted: derivatives
Deleted: their
Deleted: salts

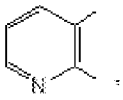
v) 

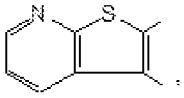
vi) 

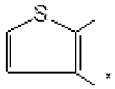
vii) 

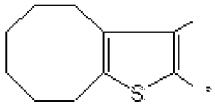
viii) 

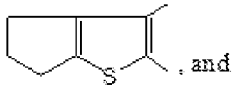
ix) 

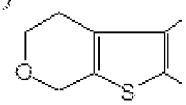
x) 

xi) 

xii) 

xiii) 

xiv)  , and

xv) 

in which

R^5 stands for hydrogen, lower alkyl, carboxyl or lower alkoxycarbonyl,

R^6 stands for hydrogen or lower alkyl,

and

R^7 stands for hydrogen, lower alkyl, lower alkanoyl, lower alkoxycarbonyl or phenyl lower alkoxycarbonyl.

7. (Cancelled)

8. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which X^1 stands for amino or lower alkyl.

9. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which X^2 stands for hydrogen.

10. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which Y stands for a direct bond or sulfur.

11. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which n stands for 2 or 3.

12. (Currently Amended) The pyrimidine compound or pharmaceutically acceptable salt thereof as set forth in Claim 1, in which Ar stands for quinolyl group which is either unsubstituted or substituted with substituent(s) selected from halogen, lower alkyl, hydroxyl, lower alkoxy and phenyl.

13. (Currently Amended) A pyrimidine compound selected from the group consisting of the following compounds, or a pharmaceutically acceptable salt thereof:

3-amino-5,6-dimethyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-3H-thieno[2,3-d]pyrimidin-4-one,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-5,6,7,8- tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,

3-amino-5,6-dimethyl-2-[3-(4-pyrrolo[1,2-a]quinoxalin-4- ylpiperazin-1-yl)propylthio]-3H-thieno[2,3-d]pyrimidin-4-one,

3-amino-5-methyl-4-oxo-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]- 3,4-dihydrothieno[2,3-d]pyrimidine-6-carboxylic acid ethyl ester,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-5,6,7,8,9,10- hexahydro-3H-11-thia-1,3-diazacycloocta[a]inden-4-one,

Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: derivative
Deleted: compounds or

3-amino-7-methyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]- 5,6,7,8-tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,
3-amino-2-[3-[4-(4-methylquinolin-2-yl)piperazin-1-yl]propylthio]- 5,6,7,8-tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,
3-amino-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-5,6,7,8- tetrahydro-3H-9-thia-1,3,7-triazafluoren-4-one,
3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro- 3H-quinazolin-4-one,
3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4- one,
3-amino-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-3H- quinazolin-4-one,
3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- thieno[3,2-d]pyrimidin-4-one,
3-amino-6-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- quinazolin-4-one,
3-amino-2-[4-[4-(5-methoxyquinolin-2-yl)piperazin-1-yl]butyl]-3H- quinazolin-4-one,
3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- thieno[2,3-d]pyrimidin-4-one,
3-amino-5-chloro-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- quinazolin-4-one,
3-amino-5-hydrazino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- quinazolin-4-one,
3-amino-5,6-dimethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- thieno[2,3-d]pyrimidin-4-one,
3-amino-8-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3,5,6,7,8,9- hexahydro-cyclohepta[d]pyrimidin-4-one,
3-amino-6-fluoro-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- quinazolin-4-one,
3-amino-6-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-amino-6-ethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-amino-6-hydroxy-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-amino-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylamine]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,

3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro- 3H-quinazolin-4-one,
3-ethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro- 3H-quinazolin-4-one,
3-methyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-ethyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-benzyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,
3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4- one,
3-ethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4- one,
6-chloro-3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H- quinazolin-4-one,
3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-5,6,7,8- tetrahydro-3H-quinazolin-4-one, and
3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylthio]-3H- quinazolin-4-one.

14. (Cancelled)

15. (Currently Amended) A pharmaceutical composition comprising a pyrimidine derivative or pharmaceutically acceptable salt thereof as set forth in Claim 1 and a pharmaceutically acceptable carrier.

Deleted: Medical
Deleted: compositions containing the
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: carriers

16-17. (Cancelled)

18. (Currently Amended) A method for treating irritable bowel syndrome (IBS) by exerting 5-HT_{1A} agonistic activity and 5-HT_3 antagonistic activity *in vivo* simultaneously and cooperatively, which comprises

administering to a human being or other mammal who requires irritable bowel syndrome (IBS) therapy, a 5-HT_3 antagonistic agent which concurrently exhibits 5-HT_{1A} agonistic activity,

in which the 5-HT_3 antagonistic agent which concurrently exhibits 5-HT_{1A} agonistic activity is a pyrimidine compound selected from the group consisting of the following compounds, or a pharmaceutically acceptable salt thereof:

Deleted: derivative

Deleted: their

3-amino-5,6-dimethyl-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]-3Hthieno[2,3-d]pyrimidin-4-one,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]-5,6,7 ,8-tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,

3-amino-5,6-dimethyl-2-[3-(4-pyrrolo[1,2-a]quinoxalin-4-ylpiperazin-1-yl)propylthio]-3H-thieno[2,3-d]pyrimidin-4-one,

3-amino-5-methyl-4-oxo-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]3,4-dihydrothieno[2,3-d]pyrimidine-6-carboxylic acid ethyl ester,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]-5,6,7,8,9,10- hexahydro-3H-11-thia-1,3-diazacycloocta[a]inden-4-one,

3-amino-7-methyl-2- [3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]- 5,6,7,8-tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,

3-amino-2-[3-[4-(4-methylquinolin-2-yl)piperazin-l-yl]propylthio]-5,6,7,8-tetrahydro-3H-benzo[4,5]thieno[2,3-d]pyrimidin-4-one,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylthio]-5,6,7,8-tetrahydro-3H-9-thia-1,3, 7-triazafluoren-4-one,

3-amino-2-[4-(4-quinolin-2-ylpiperazin -l-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-amino-2-[4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-3H-quinazolin-4-one,

3-amino-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-3H-quinazolin-4-one,

3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-thieno[3,2-d]pyrimidin-4-one,

3-amino-6-methyl-2-[4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-3H-quinazolin-4-one,

3-amino-2-[4-[4-(5-methoxyquinolin-2-yl)piperazin-l-yl]butyl]-3H--quinazolin-4-one,

3-amino-2-[4-(4-quinolin -2-ylpiperazin-l-yl)butyl]-3H-thieno[2,3-d]pyrimidin-4-one,

3-amino-5-chloro-2-[4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-3H-quinazolin-4-one,

3-amino-5-hydrazino-2-[4-(4-quinolin-2-ylpiperazin -1-yl)butyl]-3Hquinazolin-4-one,

3-amino-5,6-dimethyl-2-[4-(4-quinolin-2-ylpiperazin -l-yl)butyl]-3H-thieno[2,3-d]pyrimidin-4-one,

3-amino-8-methyl-2-[4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-amino-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3,5,6,7,8,9- hexahydro-cyclohepta[d]pyrimidin-4-one,

3-amino-6-fluoro-2-[4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-3H-quinazolin-4-one,

3-amino-6-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-amino-6-ethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-amino-6-hydroxy-2-]4-(4-quinolin-2-ylpiperazin-l-yl)butyl]-5,6,7,8- tetrahydro-3H-quinazolin-4-one,

3-amino-2-[3-(4-quinolin-2-ylpiperazin-l-yl)propylamine]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-ethyl-2-[4-(4--quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-methyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-ethyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-benzyl-2-[4-[4-(4-methylquinolin-2-yl)piperazin-1-yl]butyl]-5,6,7,8-tetrahydro-3H

-quinazolin-4-one,

3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3-ethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

6-chloro,-3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1yl)propylthio]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1yl)propylthio]-3H-quinazolin-4-one,

3-propyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-benzyl-2-[4-(4-quinolin -2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3-methyl-2-[3-(4-quinolin -2-ylpiperazin-1-yl)propyl]-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

2-[4-(4-benzothiazol-2-ylpiperazin-1-yl)butyl]-3-methyl-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

2-[4-(4-benzothiazol-2-ylpiperazin-1-yl)butyl]-3-ethyl-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

2-[4-(4-benzothiazol-2-ylpiperazin-1-yl)butyl]-3-benzyl-5,6,7,8-tetrahydro-3H -quinazolin-4-one,

3,6-dimethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-ethyl-6-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-methyl-2-[4-)4-quinolin-2-ylpiperazin-1-yl)pentyl]-5,6,7,8-tetrahydro-3H-quinazolin-4-one,

3-isopropyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3-benzyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3-(4-methoxyphenyl)-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

5-chloro-3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

1,5-dimethyl-6-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-1,5-dihydropyrazolo[3,4-d]pyrimidin-4-one,

6,7-dimethoxy-3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3,5,6-trimethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-thieno[2,3-d]pyrimidin-4-one,

3,7-dimethyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

6-bromo-3-methyl-2-[4-(4-quinolin-2-ylpiperazin-1-yl)butyl]-3H-quinazolin-4-one,

3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylamino]-5,6,7,8-tetrahydro-3H-quinazolin-4-one, and

3-methyl-2-[3-(4-quinolin-2-ylpiperazin-1-yl)propylamine]-3H-quinazolin-4-one.

19. (Currently Amended) A method for treating irritable bowel syndrome (IBS) by exerting 5-HT_{1A} agonistic activity and 5-HT_3 antagonistic activity *in vivo* simultaneously and cooperatively, which comprises

administering to a human being or other mammal who requires irritable bowel syndrome (IBS) therapy, a 5-HT_3 antagonistic agent which concurrently exhibits 5-HT_{1A} agonistic activity,

in which the 5-HT_3 antagonistic agent which concurrently exhibits 5-HT_{1A} is a piperazinylpyridine compound selected from the group consisting of the following compounds, or a pharmaceutically acceptable salt thereof:

Deleted: derivative

Deleted: their

7-chloro-1-(4-methylpiperazin-1-yl)isoquinoline,

7-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[2,3-c]- pyridine,

7-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)furo[2,3-c]- pyridine,

2-methyl-4-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)- thieno[3,2-c]pyridine,

7-methoxy-1-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)- isoquinoline,

2-bromo-4-(4-methylpiperazin-1-yl)thieno[3,2-c]pyridine.

7-piperazin-1-ylfuro[2,3-c]pyridine,

4-(4-methylpiperazin-l-yl)furo[2,3-c]pyridine,

7-(4-methylpiperazin-l-yl)thieno[2,3-c]pyridine,

4-(4-methylpiperazin-l-yl)thieno[3,2-c]pyridine,

3-chloro-l-(4-methylpiperazin-l-yl)isoquinoline dihydrochloride,

7-(4-ethylpiperazin-l-yl)-thieno[2,3-c]pyridine,

8-(4-methylpiperazin-1-yl)[1,7]naphthyridine,

2-methylpiperazin-l-ylfuro[3,2-c]pyridine,

7-methoxy-4-methyl-l-piperazin-l-ylisoquinoline,

7-bromo-l-piperazin-l-ylisoquinoline,

7-methoxy-l-(4-methylpiperazin-l-yl)isoquinoline,

7-methoxy-l-piperazin-l-ylisoquinoline,

1-piperazin-l-ylisoquinoline,

7-methoxy-l-(3-methylpiperazin-1-yl)isoquinoline,

6-methoxy-l-piperazin-l-ylisoquinoline,

7-methyl-l-piperazin-l-ylisoquinoline,

7-methyl-l-(4-methylpiperazin-l-yl)isoquinoline,

7-chloro-l-piperazin-l-ylisoquinoline,

7-fluoro-l-(4-methylpiperazin-l-yl)isoquinoline,

6-chloro-l-piperazin-l-ylisoquinoline,

5-chloro-l-(4-methylpiperazin-l-yl)isoquinoline,

7-fluoro-1-piperazin l-ylisoquinoline,

1-(4-benzo[1,3]dioxol-5-ylmethylpiperazin-l-yl)-7-methoxyisoquinoline,

1-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)-7-methoxyisoquinoline,

7-chloro-l-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)isoquinoline,

8-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)-1,7-naphthyridine,

7-chloro-l-((8aR)-octahydlropyrrolo[1,2-a]pyrazin-2-yl)isoquinoline,

7-methoxy-l-octahydropyrido[1,2-a]pyrazin-2-ylisoquinoline,

7-methylsulfanyl-l-(S)-octahydropyrido[1,2-a]pyrazin-2-ylisoquinoline,

1-(S)-octahydropyrido[1,2-a]pyran-2-yl-7-hydroxyisoquinoline,

l-(S)- octahydropyrido[1,2-a]pyran-2-yl-7-sulfamoylisoquinoline,

7-dimethylamino-l-(4-methylpiperazin-l-yl)isoquinoline,

7-hydroxy-1-piperazin-l-ylisoquinoline hydrochloride,

7-(4-fluorobenzyloxy)-1-piperazin-l-ylisoquinoline,

4-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yI)thieno[3,2-c]pyridine,

4-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)furo[3,2-c]pyridine,

2-bromo-4-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[3,2-c]-pyridine,

7-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[2,3-c]pyridine,

4-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[3,2-c]pyridine,

7-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)furo[2,3-c]pyridine,

7-((7R,8aS)-7-hydlroxyoctahydropyrrolo[1,2-a]pyrazin-2-yl)furo[2,3-c]pyridine,

7-((7R,8aS)-7-hydroxyoctahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[2,3-c]pyridine,

4-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)furo[3.2-c]pyridine,

4-((7R,8aS)-7-hydroxyoctahydropyrrolo[1,2-a]pyrazin-2-yl)furo[3,2-c]-pyridine,

4-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)-2-methylfuro[3,2-c]pyridine,

7-((7R,8aS)-7-benzyloxyoctahydropyrrolo[1,2-a]pyrazin-2-yl)thieno-[2,3-c]pyridine,

4-((7R,8aS)-7-benzyloxyoctahydropyrrolo[1,2-a]pyrazin-2-yl)thieno-[3,2-c]pyridine,

7-octahydropyrido[1,2-a]pyrazin-2-ylfuro[2,3-c]pyridine,

4-octahydropyrido[1,2-a]pyrazin-2-ylfuro[3,2-c]pyridine,

7-octahydropyrido[1,2-a]pyrazin-2-ylthieno[2,3-c]pyridine, and

4-octahydropyrido[1,2-a]pyrazin-2-ylthieno[3,2-c]pyridine.

20. (Currently Amended) The method as set forth in Claim 19, in which the 5-HT_3 antagonistic agent which concurrently exhibits 5-HT_{1A} agonistic activity is a piperazinylpyridine compound selected from the group consisting of the following compounds, or a pharmaceutically acceptable salt thereof:

Deleted: derivative
Deleted: their
Deleted: salts

7-chloro-1-(4-methylpiperazin-1-yl)isoquinoline,

7-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)thieno[2,3-c]- pyridine,

7-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)furo[2,3-c]- pyridine,

2-methyl-4-((8aS)-octahydropyrrolo[1,2-a]pyrazin-2-yl)- thieno[3,2-c]pyridine,

7-methoxy-1-((8aR)-octahydropyrrolo[1,2-a]pyrazin-2-yl)- isoquinoline, and

2-bromo-4-(4-methylpiperazin-1-yl)thieno[3,2-c]pyridine.

21. (Previously Presented) A method for treating irritable bowel syndrome (IBS) by exerting 5-HT_{1A} agonistic activity and 5-HT_3 antagonistic activity in vivo simultaneously and cooperatively, which comprises

administering to a human being or other mammal who requires irritable bowel syndrome (IBS) therapy, a 5-HT_{1A} agonistic agent and a 5-HT_3 antagonistic agent simultaneously, or in sequence, or at an interval,

in which the 5-HT_{1A} agonistic agent is tandospirone, and

the 5-HT_3 antagonistic agent is a compound selected from alosetron, granisetron, azasetron, tropisetron, ramosetron, ondansetron, lerisetron, cilansetron, itasetron, indisetron, dolasetron and (R)-zacopride.

22. (Currently Amended) A combination of medical preparations for treating irritable bowel syndrome, which comprise 5-HT_{1A} agonistic agent and 5-HT_3 antagonistic agent,

Deleted: Combinations

in which the 5-HT_{1A} agonistic agent is tandospirone, and

the 5-HT_3 antagonistic agent is a compound selected from the group consisting of alosetron, granisetron, azasetron, tropisetron, ramosetron, ondansetron, lerisetron, cilansetron, itasetron, indisetron, dolasetron and (R)-zacopride.

23. (Cancelled)

24. (Currently Amended) A pharmaceutical composition, comprising a pyrimidine compound or a pharmaceutically acceptable salt thereof as set forth in claim 13 and a pharmaceutically acceptable carrier.

Deleted: Medical
Deleted: compositions containing the
Deleted: derivatives
Deleted: their
Deleted: salts
Deleted: carriers

25. (Cancelled)

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Erich A. Leeser whose telephone number is 571-272-9932. The Examiner can normally be reached Monday through Friday from 8:30 to 6:00 EST.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. James O. Wilson can be reached at 571-272-0661. The fax number for the organization where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197. If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erich A. Leeser/
Patent Examiner, Art Unit 1624
United States Patent and Trademark Office
400 Dulany Street, Remsen 5C11
Alexandria, VA 22314-5774
Tel. No.: (571) 272-9932

/James O. Wilson/
Supervisory Patent Examiner, Art Unit 1624
United States Patent and Trademark Office
400 Dulany Street, Remsen 5A11
Alexandria, VA 22314-5774
Tel. No.: (571) 272-0661